==========

Sequence Listing was accepted with existing errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Durreshwar Anjum

Timestamp: Wed Jun 06 09:16:22 EDT 2007

==========

Validated By CRFValidator v 1.0.2

Application No: 10584871 Version No: 1.0

Input Set:

Output Set:

Started: 2007-05-25 20:45:49.230
Finished: 2007-05-25 20:45:53.054
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 824 ms
Total Warnings: 67
Total Errors: 2
No. of SeqIDs Defined: 67
Actual SeqID Count: 67

Error code	Error Description
E 201	Mandatory field data missing in <140>
E 201	Mandatory field data missing in <141>
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 213	Artificial or Unknown found in <213> in SEQ ID (15)
W 213	Artificial or Unknown found in <213> in SEQ ID (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)

Input Set:

Output Set:

Started: 2007-05-25 20:45:49.230
Finished: 2007-05-25 20:45:53.054
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 824 ms
Total Warnings: 67
Total Errors: 2
No. of SeqIDs Defined: 67
Actual SeqID Count: 67

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20) This error has occured more than 20 times, will not be displayed

SEQUENCE LISTING

<110> Gigliotti, Francis
Wright, Terry W.
Haidaris, Constantine G.
Simpson Haidaris, Patricia J.
Wells, Jesse

<120> POLYPEPTIDES AND IMMUNOGENIC CONJUGATES CAPABLE OF
INDUCING ANTIBODIES AGAINST PATHOGENS, AND USES THEREOF

<130> 176/61732

<140> 10584871
<141> 2007-05-25

<150>
<151>

<150> 60/533,788
<151> 2003-12-31

<150> PCT/US2004/043959
<151> 2004-12-31

<160> 67

<170> PatentIn Ver. 2.1

<210> 1
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (1)
<223> Xaa at position 1 is Arg, Lys, or Gln

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (5)
<223> Xaa at position 5 is optional and can be Pro

<220>
<221> PEPTIDE
<222> (6)
<223> Xaa at position 6 is Lys, Gln, or Arg

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 1
Xaa Pro Xaa Pro Xaa Xaa Pro Xaa Pro
  1   5

<210> 2
<211> 543
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: partial
      nucleotide sequence of the proline rich domain of
      mouse P. carinii kexin

<400> 2
aaaccaacac ctcaaccaac acctcagcca acatctgagc caacatctga gccaacatct 60
gagccaacat ctgaaccaac acctcaacca gcaccacctc aaccagcacc acctcaacca 120
gcacctcaac cagcacctca accagcacct caaccagcac cacctcaacc agcaccacct 180
caaccagtac cacctcaacc agtaccacct caaccaatgc catctagacc agcaccacct 240
aaaccaacac ctcaaccaac atctgagcca gcacctcaac caacatctga gtcaacatct 300
gaaccaacac ctcgaccacc acctcagcca acatctgagc caacatctga accaacatct 360
gaaccaacat ctgaaccatc acctcaacca acacctcaac cagtacctca accagcacct 420
caaccagcac cacctaaacc ggcacctaaa ccaacaccac ctaaaccggc acctaaacca 480
acaccaccta aaccagcgcc taaaccagca ccatctaaat catcatctaa accaacatct 540
aca   543

<210> 3
<211> 181
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: deduced amino
      acid sequence of the proline rich domain of mouse
      P. carinii kexin

<400> 3
Lys Pro Thr Pro Gln Pro Thr Pro Gln Pro Thr Ser Glu Pro Thr Ser
  1   5   10   15

Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Thr Pro Gln Pro Ala Pro
             20   25   30

Pro Gln Pro Ala Pro Pro Gln Pro Ala Pro Gln Pro Ala Pro Gln Pro
         35   40   45

Ala Pro Gln Pro Ala Pro Pro Gln Pro Ala Pro Pro Gln Pro Val Pro
     50   55   60

Pro Gln Pro Val Pro Pro Gln Pro Met Pro Ser Arg Pro Ala Pro Pro

```
 65                  70                  75                  80

Lys Pro Thr Pro Gln Pro Thr Ser Glu Pro Ala Pro Gln Pro Thr Ser
                 85                  90                  95

Glu Ser Thr Ser Glu Pro Thr Pro Arg Pro Pro Pro Gln Pro Thr Ser
            100                 105                 110

Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Thr Ser Glu Pro Ser Pro
        115                 120                 125

Gln Pro Thr Pro Gln Pro Val Pro Gln Pro Ala Pro Gln Pro Ala Pro
    130                 135                 140

Pro Lys Pro Ala Pro Lys Pro Thr Pro Pro Lys Pro Ala Pro Lys Pro
145                 150                 155                 160

Thr Pro Pro Lys Pro Ala Pro Lys Pro Ala Pro Ser Lys Ser Ser Ser
                165                 170                 175

Lys Pro Thr Ser Thr
            180
```

<210> 4
<211> 967
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: nucleotide
      sequence of P. carinii cDNA clone A12

<400> 4
```
accaatatat ccgaaccagc actgcctgat aaggatcctc aacctacatc ttcacctcag 60
ccaaaacctc ggccaagacc tcgacctcaa cctcaacctc atccacatcc aaaacctcag 120
cctcagccga cgccagaacc tcagcctcag ccggcgccag aacctcgacc tcagccgacg 180
tcaaaacctc gacctcagcc aacgtcaaaa cctcgacctc agccgacgcc agaacctcga 240
cctctgccgg tgccaggacc tggacctctg ccggtgccag gacctcgacc tcaacctcaa 300
cctcaacctc aacctcagcc tcaacctcaa cctcagcctc aacctcaacc tcagcctcag 360
cctcagcctc agcctcagcc tcaacctcag ccgaagcctc aaccaccatc tcagtcaaca 420
tcagaatcag catcgcaatc caaaccaaaa ccaacaacac aaacaaaacc gtcaccgaga 480
ccacacccaa agccggtgcc aaaaccatca tcgatagaca caggaccatc aaaatcggat 540
tcaagcttca tttttacagt aacaaaaaca ataacaaaga tatcagaaac agaaaaacca 600
tctacaaaac catctgtgaa accaacctct acaaagacaa catcaaaacc atctacaaaa 660
ccatctacaa aaccatctgt aaaaccagcc tctacaaaga caacatcaga atcagaaaaa 720
ccaacattgg aagaagttcc agaaactaaa gggaatggtg taagagtaat aggatttgag 780
gggttacaat tattatcaat gattgttgca ataataattg ggatatggat aatgtaaatt 840
taattagaag tcattggcta ttaaattaat atatagtaat ttgtaataat tagataaata 900
gacaggggat ctagaaatca atgtgtgatt aaataaatat aaaaatctaa aaaaaaaaaa 960
aaaaaaa                                                          967
```

<210> 5
<211> 278
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: amino acid
sequence of P. carinii cDNA clone A12

<400> 5

```
Thr Asn Ile Ser Glu Pro Ala Leu Pro Asp Lys Asp Pro Gln Pro Thr
  1               5                  10                  15

Ser Ser Pro Gln Pro Lys Pro Arg Pro Arg Pro Arg Pro Gln Pro Gln
             20                  25                  30

Pro His Pro His Pro Lys Pro Gln Pro Gln Pro Thr Pro Glu Pro Gln
         35                  40                  45

Pro Gln Pro Ala Pro Glu Pro Arg Pro Gln Pro Thr Ser Lys Pro Arg
     50                  55                  60

Pro Gln Pro Thr Ser Lys Pro Arg Pro Gln Pro Thr Pro Glu Pro Arg
 65                  70                  75                  80

Pro Leu Pro Val Pro Gly Pro Gly Pro Leu Pro Val Pro Gly Pro Arg
                 85                  90                  95

Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln
            100                 105                 110

Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln Pro Gln
        115                 120                 125

Pro Gln Pro Lys Pro Gln Pro Pro Ser Gln Ser Thr Ser Glu Ser Ala
    130                 135                 140

Ser Gln Ser Lys Pro Lys Pro Thr Thr Gln Thr Lys Pro Ser Pro Arg
145                 150                 155                 160

Pro His Pro Lys Pro Val Pro Lys Pro Ser Ser Ile Asp Thr Gly Pro
                165                 170                 175

Ser Lys Ser Asp Ser Ser Phe Ile Phe Thr Val Thr Lys Thr Ile Thr
            180                 185                 190

Lys Ile Ser Glu Thr Glu Lys Pro Ser Thr Lys Pro Ser Val Lys Pro
        195                 200                 205

Thr Ser Thr Lys Thr Thr Ser Lys Pro Ser Thr Lys Pro Ser Thr Lys
    210                 215                 220

Pro Ser Val Lys Pro Ala Ser Thr Lys Thr Thr Ser Glu Ser Glu Lys
225                 230                 235                 240

Pro Thr Leu Glu Glu Val Pro Glu Thr Lys Gly Asn Gly Val Arg Val
                245                 250                 255

Ile Gly Phe Glu Gly Leu Gln Leu Leu Ser Met Ile Val Ala Ile Ile
            260                 265                 270
```

Ile Gly Ile Trp Ile Met
275

<210> 6
<211> 192
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: partial deduced amino acid sequence of S. pneumoniae URSP2 PspA

<400> 6
Glu Lys Glu Leu Lys Glu Ile Asp Glu Ser Asp Ser Glu Asp Tyr Ile
1 5 10 15

Lys Glu Gly Leu Arg Ala Pro Leu Gln Ser Lys Leu Asp Ala Lys Lys
20 25 30

Ala Lys Leu Ser Lys Leu Glu Glu Leu Ser Asp Lys Ile Asp Glu Leu
35 40 45

Asp Ala Glu Ile Ala Lys Leu Glu Lys Asp Val Glu Asp Phe Lys Asn
50 55 60

Ser Asp Gly Glu Gln Ala Glu Gln Tyr Leu Val Ala Ala Lys Lys Asp
65 70 75 80

Leu Asp Ala Lys Lys Ala Glu Leu Glu Asn Thr Glu Ala Asp Leu Lys
85 90 95

Lys Ala Val Asp Glu Pro Glu Thr Pro Ala Pro Ala Pro Lys Pro Ala
100 105 110

Pro Ala Pro Ala Pro Thr Pro Glu Ala Pro Ala Pro Ala Pro Lys Pro
115 120 125

Ala Pro Ala Pro Lys Pro Ala Pro Ala Pro Ala Pro Thr Pro Glu Ala
130 135 140

Pro Ala Pro Ala Pro Lys Pro Ala Pro Ala Pro Lys Pro Ala Pro Ala
145 150 155 160

Pro Ala Pro Thr Pro Glu Ala Pro Ala Pro Ala Pro Lys Pro Ala Pro
165 170 175

Ala Pro Arg Pro Ala Pro Ala Pro Lys Pro Ala Pro Asp Pro Lys Pro
180 185 190

<210> 7
<211> 9

<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 7
Arg Pro Xaa Pro Pro Lys Pro Xaa Pro
  1   5

<210> 8
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 8
Arg Pro Xaa Pro Pro Gln Pro Xaa Pro
  1   5

<210> 9
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 9
Arg Pro Xaa Pro Pro Arg Pro Xaa Pro
  1   5

<210> 10
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 10
Lys Pro Xaa Pro Pro Lys Pro Xaa Pro
  1   5

<210> 11
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 11
Lys Pro Xaa Pro Pro Gln Pro Xaa Pro
  1   5

<210> 12

<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 12
Lys Pro Xaa Pro Pro Arg Pro Xaa Pro
  1   5

<210> 13
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 13
Gln Pro Xaa Pro Pro Lys Pro Xaa Pro
  1   5

<210> 14
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 14
Gln Pro Xaa Pro Pro Gln Pro Xaa Pro
  1   5

<210> 15
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (8)
<223> Xaa at position 8 is any amino acid

<400> 15
Gln Pro Xaa Pro Pro Arg Pro Xaa Pro
  1   5

<210> 16
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 16
Arg Pro Xaa Pro Lys Pro Xaa Pro
  1   5

<210> 17
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 17
Arg Pro Xaa Pro Gln Pro Xaa Pro
  1   5

<210> 18
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 18
Arg Pro Xaa Pro Arg Pro Xaa Pro
  1   5

<210> 19
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)

<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 19
Lys Pro Xaa Pro Lys Pro Xaa Pro
1 5

<210> 20
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 20
Lys Pro Xaa Pro Gln Pro Xaa Pro
1 5

<210> 21
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 21
Lys Pro Xaa Pro Arg Pro Xaa Pro
1 5

<210> 22
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 22
Gln Pro Xaa Pro Lys Pro Xaa Pro
  1   5

<210> 23
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE
<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 23
Gln Pro Xaa Pro Gln Pro Xaa Pro
  1   5

<210> 24
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: peptide

<220>
<221> PEPTIDE

<222> (3)
<223> Xaa at position 3 is any amino acid

<220>
<221> PEPTIDE
<222> (7)
<223> Xaa at position 7 is any amino acid

<400> 24
Gln Pro Xaa Pro Arg Pro Xaa Pro
1 5

<210> 25
<211> 52
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Kexin Epitope S

<400> 25
aaaccggcac ctaaaccaac accacctaaa ccagcgccta aaccagcacc aa 52

<210> 26
<211> 52
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Kexin Epitope AS

<400> 26
tggtgctggt ttaggcgctg gtttaggtgg tgttggttta ggtgccggtt ta 52

<210> 27
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A39 Epitope2 S

<400> 27
agaccagcac cacctaaacc aacacctcaa ccaa 34

<210> 28
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A39 Epitope2
AS

<400> 28
tggttgaggt gttggtttag gtggtgctgg tcta 34

<210> 29
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: A32.1 Epitope
S